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AUSTRALIAN MILITARY FORCES

FIELD ENGINEERING AND MINE WARFARE

PAMPHLET No 11

FIRING DEVICE DEMOLITION F1 COMBINATION BOOBY TRAP

1967

RESTRICTED

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PAMPHLET No 11

FIRING DEVICE

DEMOLITION F1

COMBINATION BOOBY TRAP

1967

Army Headquarters,
Canberra, ACT
1/2/67

Prepared and issued under the direction of the Chief of the General Staff.

AMENDMENTS

Amendment Number	Date of Amendment	Date of Insertion

DISTRIBUTION

Engrs	Scale E
Inf	Scale E
Other Arms and Svcs (Less RAANC and WRAAC)	Scale D

PREFACE

1. The purpose of this pamphlet is to:

   a. Acquaint all arms with the Firing Device Demolition F1, Combination Booby Trap (See Figure 1).

   b. Provide instructions for the setting, neutralizing and disarming of the device.

   c. Specify the safety precautions to be observed when using the device.

2. This pamphlet should be read in conjunction with *"Field Engineering and Mine Warfare Pamphlet No 7, Booby Traps, 1952"*.

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FIRING DEVICE DEMOLITION F1 COMBINATION BOOBY TRAP

SECTION 1 — INTRODUCTION

1. The device is a standard service mechanism designed to facilitate the laying and initiation of explosive-filled booby traps.

2. It incorporates a *"coupling base assembly"* (cap and detonator) which may be screwed into the US Demolition Block, M26 Grenade and M34 Smoke Grenade. Alternatively, the detonator may be inserted into a service CE primer or used to initiate a length of detonating cord leading to a main charge.

SECTION 2 — DESCRIPTION

Components

3. The complete device is packed in a tin which contains th following items (See Figure 1):

a. Combination Switch.
b. Coupling Base, Firing Device F1.
c. Tension Release Attachment.
d. Reel Tripwire, with 50 ft of wire.
e. Fastening Nails and Screws.
f. Setting Instructions.

Operational and Training Versions

4. The following versions are available:

a. *Firing Device Demolition F1, Combination Booby Trap.* This has a live detonator in the coupling base assembly and is supplied for operational use ONLY. Both container and device are coloured olive drab with yellow markings on the container and the protective cover of the detonator. The detonator is its natural aluminium colour and is unmarked.

b. *Firing Device Demolition F2, PRACTICE, Combination Booby Trap.* This is supplied to provide realistic training without risk of injury. The coupling base assembly has a live cap and a practice detonator containing a small amount of powder. When fired, it makes a sharp report and the detonator splits open. The

FIRING DEVICE DEMOLITION F1 COMBINATION BOOBY TRAP

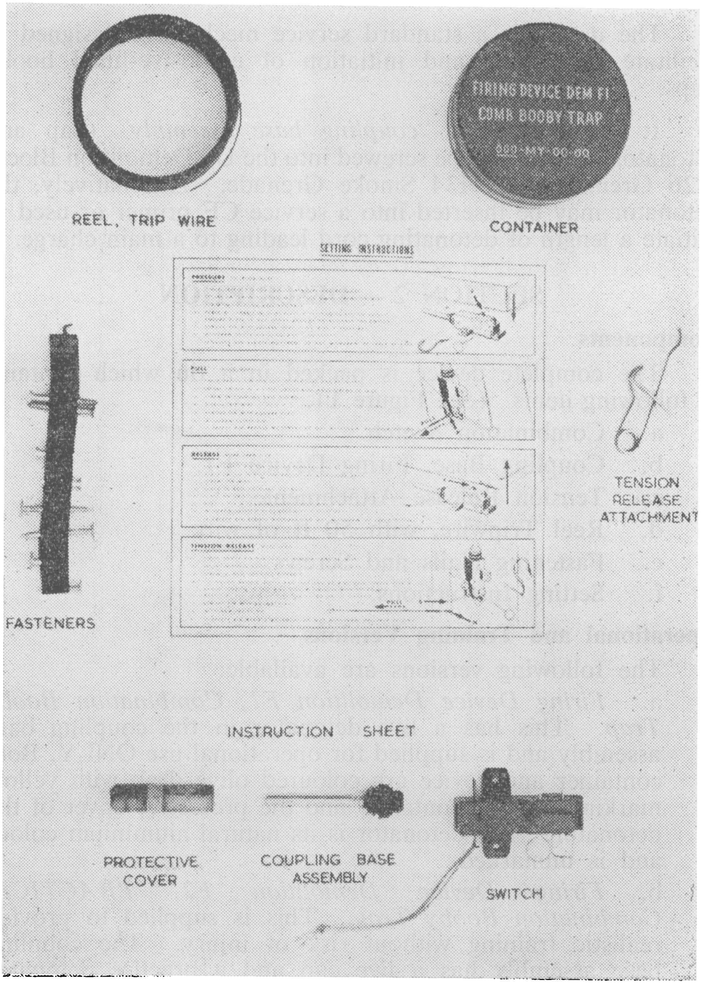


Figure 1

practice detonator is NOT suitable for initiating CE primers, detonating cord or high explosives. Both container and device are coloured blue with yellow markings on the container and coupling base assembly.

c. *Firing Device Demolition F3, INERT, Combination Booby Trap.* This is supplied for instructional purposes and use in classrooms. The coupling base assembly has an inert cap and detonator with a hole drilled through the latter. Both container and device are coloured blue with white markings on the container only.

Packaging

5. All versions of the device use similar packaging — 14 units in a Box Ammunition M19A1 with four of these in a wire-bound outer box. The filled box with 56 devices weighs 42 lbs.

6. Both inner and outer boxes are coloured olive drab with yellow markings.

Functions

7. The device may be set to function in any ONE of four ways at one time:

a. By PULL applied to a tripwire.
b. By PRESSURE applied to the sear platform.
c. By RELEASE OF PRESSURE on the sear platform.
d. By RELEASE OF TENSION on a tripwire.

8. The switch portion of the device is designed to function under water without sealing or other preparation. The coupling base assembly itself is waterproofed.

General Operation

9. The switch portion incorporates a sear plate fitted with two removable pivot pins. When both are in position, the sear plate is locked. The sear is engaged in the firing pin, which is held back against its compressed spring (See Figure 2).

10. When the SQUARE head pin is removed, a pressure of 25 lb on the sear platform or a pull of seven lb at the other end will make the sear plate pivot on the ROUND head pin. This disengages the sear, allowing the firing pin to fly forward and fire the cap in the coupling base assembly. The SQUARE head pin is always removed when the device is set for PULL or PRESSURE (See Figure 3).

SIDE VIEW OF SWITCH — SHOWING INTERIOR WITH SEAR ENGAGED IN DETENT OF FIRING PIN

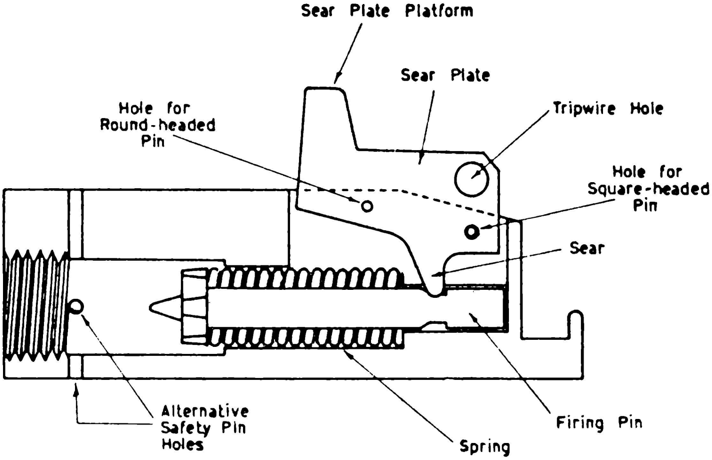

Sear Plate Platform
Sear Plate
Hole for Round-headed Pin
Tripwire Hole
Hole for Square-headed Pin
Sear
Alternative Safety Pin Holes
Firing Pin
Spring

Figure 2

SIDE VIEW OF SWITCH — SHOWING RELEASING ACTION OF SEAR PLATE WHEN SET FOR PULL OR PRESSURE

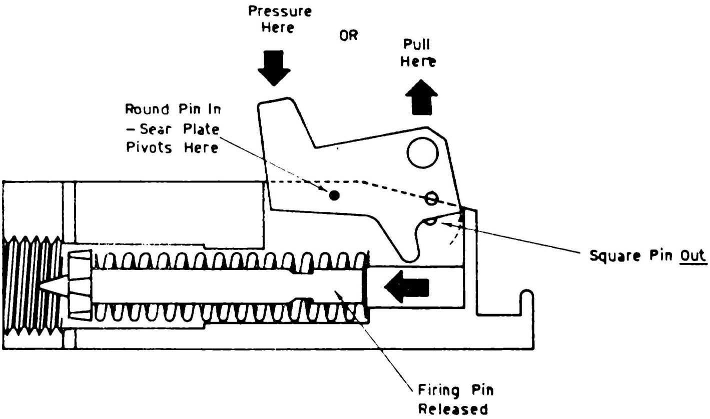


Figure 3

Note: The SQUARE head pin has a larger diameter than the ROUND head pin and their positions are not interchangeable.

11. When the ROUND head pin is removed, the sear plate is free to pivot on the SQUARE head pin. Unless the sear platform is held down by a weight of more than 2 lb, the compressed spring will push the firing pin forward, lifting the sear and automatically releasing the firing pin. The ROUND head pin is always removed when the device is set for RELEASE or TENSION RELEASE (See Figure 4).

SIDE VIEW OF SWITCH — SHOWING RELEASING ACTION OF SEAR PLATE WHEN SET FOR RELEASE OR TENSION RELEASE

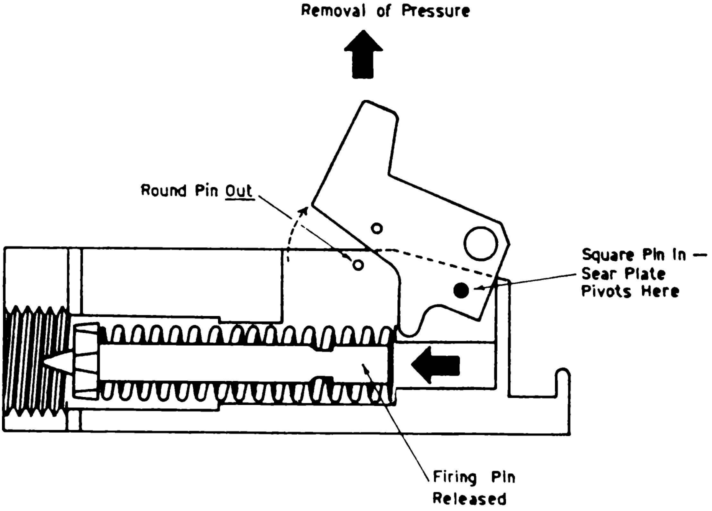


Figure 4

12. In each operating position, the firing cap is fully protected by the safety pin which can be recognized by the white nylon loop attached. If the firing pin is accidentally released during setting and the click is not heard or the changed position of the sear plate is not observed, the stiffness of extraction of the safety pin will indicate the fault. The safety pin can be inserted in the switch from either side or from top or bottom through the alternative holes provided.

SECTION 3 — GENERAL SAFETY PRECAUTIONS

13. The Firing Device Demolition F1 Combination Booby Trap has a number of safety features in its design. Provided the user follows the setting instructions, there is no risk of premature firing. Nevertheless, booby traps **of any type** can never be completely foolproof because they are designed specifically to catch the careless and unwary and must be more sensitive than more conventional mechanisms.

14. It is therefore essential that persons using any booby trap device observe the general safety precautions and procedures described in Field Engineering and Mine Warfare Pamphlets:

a. *No 5 Pt 1, Laying, Recording and Marking of Minefields, Sect 17 and Appendix H.*

b. *No 7, Booby Traps, Sects 14 to 17 and 21.*

15. Safety precautions applying specifically to the Firing Device Demolition F1 are covered in the setting, etc, instructions described in the following paragraphs.

SECTION 4 — TESTING AND RESETTING

Testing

16. Before using the device, the switch itself must be tested for efficient operation and then reset. The testing should be done in a rear area to ensure that an unserviceable device is not taken forward to the laying site. To test the switch, proceed as follows:

a. Remove switch from tin and replace lid.

b. Hold switch so that open end presses down on lid of tin.

c. Withdraw the safety pin. If this is difficult, the switch has probably been activated and the striker has moved forward bending the safety pin. (In this event the switch must be reset as explained below.)

d. Remove the pin with SQUARE head.

e. Press on the sear platform and activate the switch. If it does not function, set it to one side and report the defect. DO NOT LOOK INTO THE OPEN END OF THE SWITCH. The striker can fly out and cause permanent damage to the eye.

Resetting

17. a. Push back the striker with a pencil or round of SA ammunition until the sear can be re-engaged in the striker by pressing down on the sear plate.
    b. Re-insert pin with SQUARE head.
    c. Re-insert safety pin (straighten if bent).
    d. Check switch for cleanliness and repack in container.

SECTION 5 — SETTING, NEUTRALIZING AND DISARMING

Pull Function

DEVICE SET FOR PULL — FIRES WHEN WIRE IS PULLED

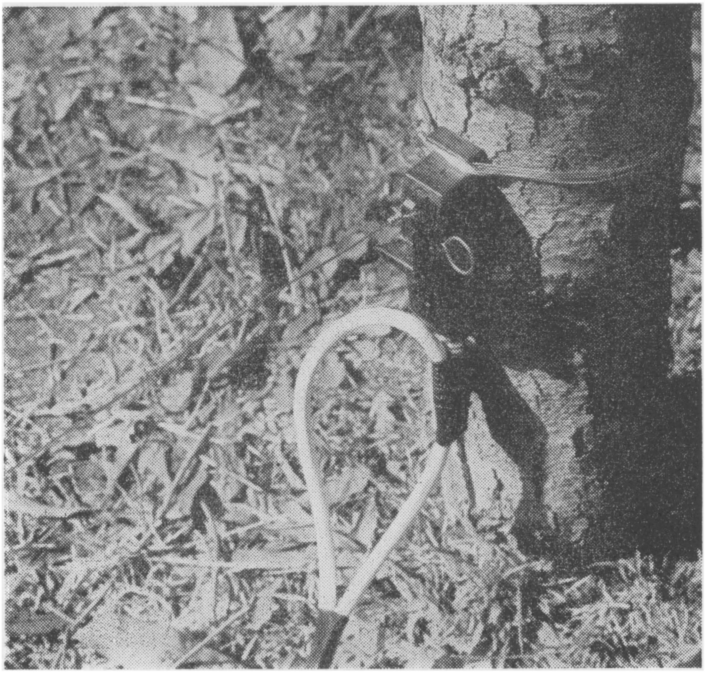


Figure 5

18. *Setting.* (See Figure 5.)

a. Check safety pin for ease of removal and re-insert.

b. Secure switch to a stake or fixed object using the nails, screws or wire provided. Ensure that the top of the sear plate faces the direction in which the tripwire will run.

c. Screw in coupling base assembly.

d. Fasten free end of tripwire to a stake or fixed object **facing** the switch and run the wire directly back to the switch. Remove any kinks.

e. Cut the wire to a suitable length, thread it through hole "P" in the sear plate and pull it fairly taut and twitch securely. Cut off any spare wire.
Note: A pull of about seven lb will activate the switch so the tripwire MUST NOT be pulled too tight.

f. Remove pin with SQUARE head without disturbing switch. (If a *"click"* is heard, it indicates that the tripwire is too tight and has activated the switch, which must be reset.)

g. Withdraw safety pin using attached string. (DO NOT ATTEMPT TO WITHDRAW THE PIN if it resists movement. Examine and reset.)

h. Move clear without disturbing switch or tripwire.

i. Remove container and other indications of laying.

19. *Neutralizing.*

a. When coupling base assembly is fitted directly into the main charge:

(1) Check along tripwire for alternative means of firing. Do NOT disturb tripwire.

(2) Insert safety pin (or suitable wire, nail, etc) in safety pin hole. Ensure that pin goes right through switch body.

(3) Cut tripwire.

b. When coupling base assembly is connected to detonating cord:

(1) Cut detonating cord between device and main charge IF THIS CAN BE DONE WITHOUT DISTURBING SWITCH.

(2) Proceed as in Sub-paragraph a. above.

Pressure Function

20. *Setting.* (See Figure 6.)

DEVICE SET FOR PRESSURE — FIRES WHEN BOARD IS PRESSED DOWN

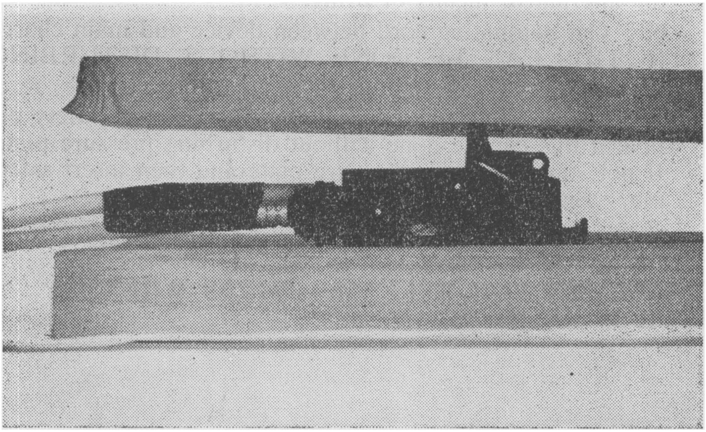


Figure 6

a. Check safety pin for ease of removal and re-insert.

b. Secure switch to firm level base (small board, etc) so that the sear platform is uppermost.

c. Screw in coupling base assembly.

d. Place a light-weight flat pressure plate (small board, etc) on the device so that it rests on the sear platform and can exert pressure on it when trodden on.

Note: A pressure of about 25 lb will activate the switch, so the pressure plate MUST NOT be too heavy.

e. Remove pin with SQUARE head using a short length of previously attached wire if necessary. (If a *"click"* is heard, it indicates that the pressure plate is too heavy and has activated the switch, which must be reset.)

f. Withdraw the safety pin using previously attached wire if necessary. (NO NOT ATTEMPT TO WITHDRAW THE PIN if it resists movement. Examine and reset.)

g. Move clear without disturbing device or pressure plate.

h. Remove container and other indications of laying.

21. *Neutralizing.*

a. Without disturbing the set-up, examine it and check for alternative means of firing.

b. Cut detonating cord between device and main charge IF THIS CAN BE DONE WITHOUT DISTURBING THE SWITCH.

c. Insert safety pin (or suitable wire, etc) in safety pin hole if this can be done without disturbing pressure plate. If not, carefully raise pressure plate and then insert safety pin. Ensure that pin goes through switch body.

Release Function

DEVICE SET FOR RELEASE — FIRES WHEN BOOK IS REMOVED

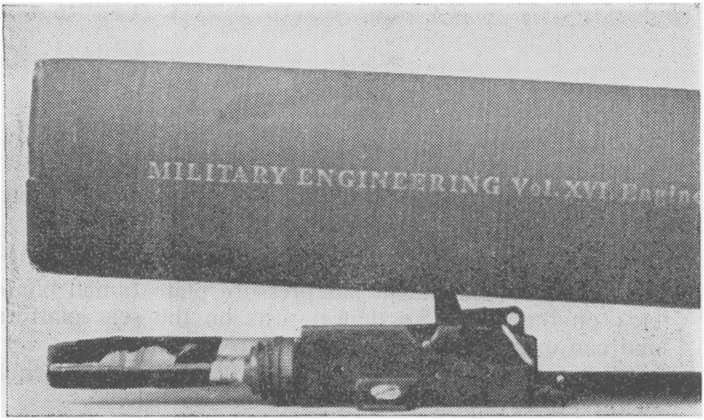


Figure 7

22. *Setting* (See Figure 7.)

a. Check safety pin for ease of removal and re-insert.

b. Secure switch to firm level base so that the sear platform is uppermost and switch cannot move.

c. Screw in the coupling base assembly.

d. Place an object on the switch so that it exerts a downward pressure of NOT LESS THAN TWO lb ON THE SEAR PLATFORM. The object itself should not be **too heavy** or it may damage the switch.

e. Ensure that the object will not overbalance on the sear platform and release the mechanism. (Some packing may be required to keep the object stable.)

f. Remove pin with ROUND head using a previously attached wire if necessary. (A *"click"* indicates that the sear platform has risen, releasing the striker. Examine and reset using heavier object on the sear platform.)

g. Withdraw safety pin using a previously attached short length of wire if necessary. Pull the pin straight out, NOT at an angle. (DO NOT ATTEMPT TO WITHDRAW THE PIN if it resists movement. Examine and reset.)

Note: THE DEVICE IS IN ITS MOST SENSITIVE STATE WHEN SET FOR RELEASE. THE UTMOST CARE MUST BE TAKEN TO AVOID DISTURBING THE SET-UP WHEN WITHDRAWING THE SAFETY PIN.

h. Move clear without disturbing the set-up.

i. Remove container and other indications of laying.

23. *Neutralizing.*

a. Without disturbing the set-up, examine it and check for alternative means of firing.

b. If possible, cut detonating cord between device and main charge.

c. Insert safety pin (or suitable wire, etc) in safety pin hole and ensure pin goes through switch body. (It may be necessary to hold the weight down on the sear platform while doing this.)

Note: IF THERE IS THE SLIGHTEST RISK OF ACTIVATING THE DEVICE WHILE MAKING IT SAFE, IT MUST BE DESTROYED IN SITU BY:

(1) Pulling it with a cable and grapnel from a safe distance.

(2) Firing a small charge next to it.

Tension Release Function

DEVICE SET FOR TENSION RELEASE — FIRES WHEN THE TRIPWIRE IS CUT

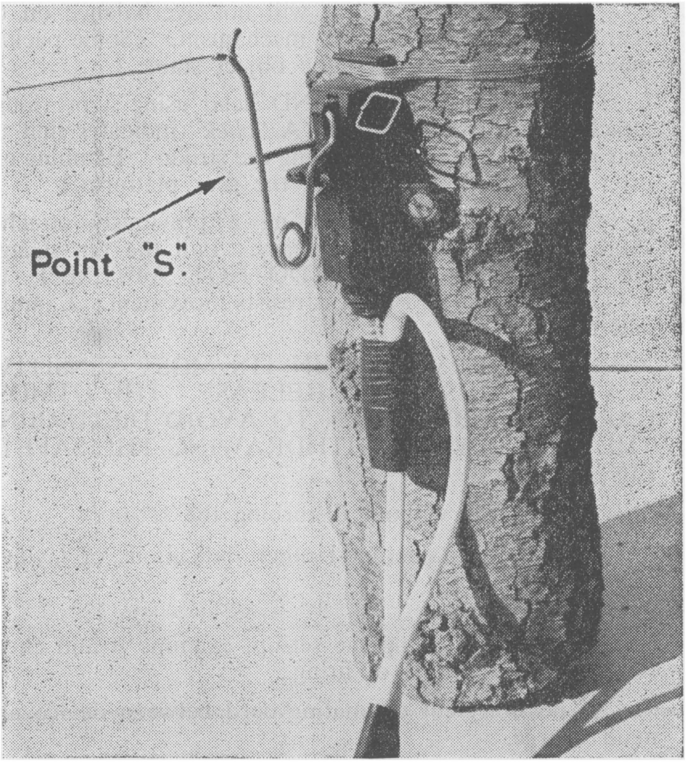


Figure 8

24. *Setting.* (See Figure 8.)

a. Check safety pin for ease of removal and re-insert.

b. Secure switch to a stake or fixed object so that it cannot move. Ensure that:

(1) The top of the sear platform faces in the direction of the tripwire.

(2) The switch is vertical, preferably with open end pointing down.

c. Screw in the coupling base assembly.

d. Fit the tension release attachment.

e. Fasten free end of tripwire to stake or fixed object facing the switch and run the wire directly back to the switch, removing any kinks:

Note: The tripwire must be horizontal in relation to the switch.

f. Cut the tripwire to a suitable length and take a complete turn around the curved neck on the tension release attachment. Adjust tension on wire until arm of attachment lines up with point "S" (Figure 8). Twitch wire securely and cut off spare end.

g. Remove pin with ROUND head without disturbing switch. (A *"click"* indicates that the switch has activated itself, probably because of insufficient tension on the tripwire. Examine and reset.)

Note: A tension of at least five lb is needed to prevent self-activation of the switch.

h. Withdraw safety pin by attached string. (DO NOT ATTEMPT TO WITHDRAW THE PIN if it resists movement, Examine and reset.)

i. Move clear without disturbing switch or tripwire.

j. Remove container and other indications of laying.

25. *Neutralizing.*

a. When coupling base assembly is fitted directly into main charge:

(1) Check along tripwire for alternative means of firing. Do NOT disturb tripwire.

(2) Insert safety pin (or suitable wire, etc) in safety pin hole. Ensure that pin goes right through switch body.

(3) Cut tripwire.

b. When coupling base assembly is connected to detonating cord:

(1) Cut detonating cord between device and main charge IF THIS CAN BE DONE WITHOUT DISTURBING SWITCH.

(2) Proceed as in Sub-paragraph a. above.

Disarming the Device

26. This action must be taken ONLY AFTER the device has been neutralized:

a. Detach switch from coupling base assembly.

b. Detach main charge, or detonating cord, from coupling base assembly.

c. Remove the device to a safe place.

SECTION 6 — CONNECTING TO A CHARGE

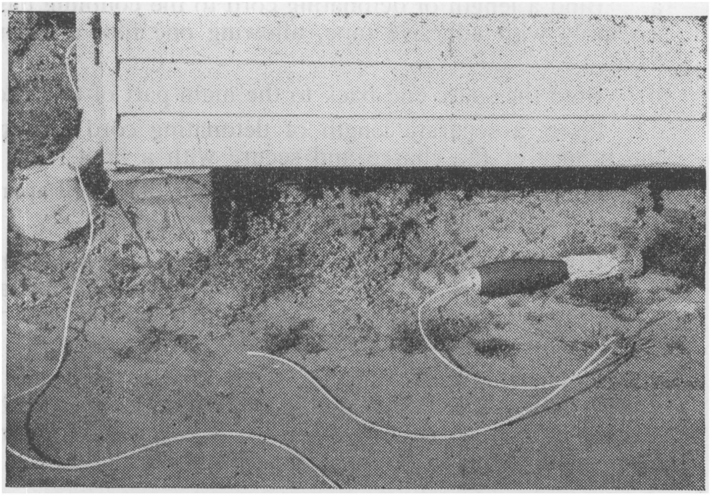
Connecting to US Demolition Block, etc

27. The coupling base assembly may be screwed directly into the detonator well of the US Demolition Block, M26 Grenade or M34 Smoke Grenade.

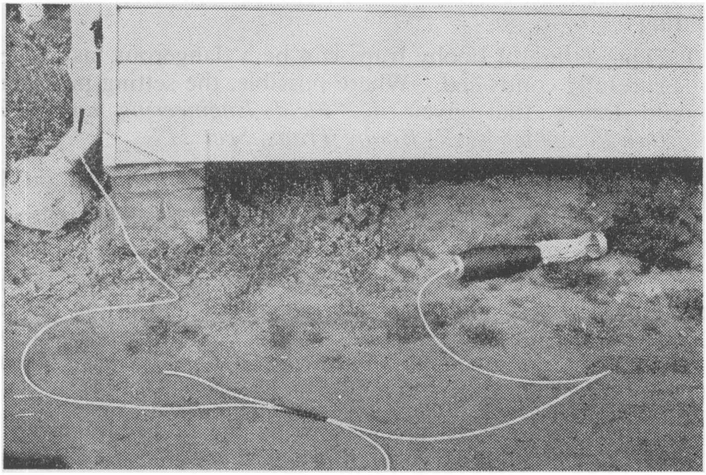
Connecting to a Separate Charge

28. When the device is required to initiate an HE charge, shell, bomb, etc, the charge will normally be concealed and may be some distance from the device. A detonating cord lead will be required to connect the device to the charge, etc.

CONNECTING THE DEVICE TO A CHARGE



Stage 1 — Before withdrawal of safety pin



Stage 2 — After withdrawal of safety pin

Figure 9

29. The connecting procedure is as follows (See Figure 9):

a. Bind a length of detonating cord to the coupling base assembly with adhesive tape, allowing one foot of spare end.

b. Bind the spare end back to the main part of the lead.

c. Insert a separate length of detonating cord through the primer of the charge and secure with a knot.

d. Keep the two loose ends of detonating cord well apart.

e. Set the device and remove the safety pin.

f. Connect the two lengths of detonating cord by binding with adhesive tape. There should be four inches overlap at the joint and one foot of spare end should be left on each length of the detonating cord.

Note: The charge is connected last so that, if the device is sprung when the safety pin is removed, there will be less harm done. Take care when connecting the detonating cord leads that the device is not disturbed.

SECTION 7 — **PROCEDURE FOR SETTING AND RECORDING TRAPS**

Setting

30. The setting of booby traps can be a dangerous task unless it is carefully controlled. Where possible, the setting procedure should follow that given in *"Field Engineering and Mine Warfare Pamphlet No 7, Booby Traps, Sect 21"*.

31. Traps incorporating explosive devices should be set by RAE and RA Inf Aslt Pnrs only.

Recording

32. The policy for recording booby traps is the same as that for mines. When laid as anti-personnel or anti-lifting devices in minefields, the procedure given in *"Field Engineering and Mine Warfare, Pamphlet No 5, Laying, Recording and Marking of Minefields"* will be followed.

33. When booby traps are laid alone, the procedure given in *"Field Engineering and Mine Warfare Pamphlet No 7, Booby Traps, Sect 22"*, will be followed.

SECTION 8 — **RESERVED**

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